

WINTER

2010

*Natural*

# OUTLOOK

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## Cooperative Solutions for the Environment

**Restoring damaged natural resources**



**Inside:** Longtime TCEQ Employee Carlos Rubinstein  
Appointed Commissioner by Governor Perry



*Natural Outlook* is published quarterly by the Agency Communications Division at the Texas Commission on Environmental Quality

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Natural Outlook, MC 118

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# Natural OUTLOOK

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Photo courtesy of Stan Williams/TxDOT

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**COVER:** Cypress-tupelo swamps such as this one have been preserved and transferred to the Big Thicket National Preserve as part of the Natural Resource Trustee Program.

Photo courtesy of Stan Williams/TxDOT

# Groundwater Conservation Districts

*Protecting the state's precious resource*

By Liz Carmack, contributing writer

Most of the water Texas consumes—about 60 percent—is groundwater. Eighty percent of the resource is used for crop irrigation, but a number of Texas cities also depend upon it. Amarillo, Bryan–College Station, El Paso, Lubbock, Houston, and San Antonio all rely upon wells to supply the needs of their residents, businesses, and industries.

According to the Texas Water Development Board (TWDB), during the next half century the urban use of groundwater in Texas will grow to exceed irrigation use. Cities will increasingly draw upon groundwater as their populations outpace rural growth. The TWDB also expects available groundwater supplies to decline during that same period by 32 percent.

As the demand for this shrinking resource grows, so does its need for management and protection—a critical task that, in large part, begins at the local level.

## Groundwater Management

In 1949, the State Legislature allowed for the creation of groundwater conservation districts—local governmental entities that work to balance the rights of private landowners with the need for resource protection.

As of September 2009, 96 districts have been established, covering all

or part of 152 of Texas' 254 counties. Their boundaries generally coincide with the boundaries of a single county or multiple counties. Groundwater management areas (GMAs), established by the TWDB, and priority groundwater management areas (PGMAs), established by the TCEQ, generally mimic the boundaries of an aquifer. Multiple districts are usually established within these larger management areas. Texas has 16 GMAs and 7 PGMAs.

## Empowered to Protect a Precious Resource

For more than a century, groundwater in Texas has been considered the property of the owner of the overlying land. This rule of capture is sometimes referred to as the “rule of the biggest pump,” because a deep well pumping groundwater at one location can cause the more shallow wells of adjacent landowners to go dry.

“Groundwater conservation districts are important, because they are the only entities in the state authorized to regulate the production and spacing of water wells,” says Kelly Mills, leader of the TCEQ’s Groundwater Planning and Assessment Team. “They help control the rule of capture.”

A district’s primary power is its ability to require all wells, with certain exceptions, to be registered and

permitted. It can also enact rules that govern the spacing, drilling, equipping, completion, or alteration of wells. Additional mandated duties include the need to keep records of the drilling, equipping, and completion of water wells, and of the production and use of groundwater.

The water-pumping constituents within a district may range from municipalities and industries to ranchers, farmers, and rural homeowners. The district must balance the competing demands of these constituents with its responsibility to manage and conserve the resource.

Primary in its list of duties is the development of an overarching plan to guide its efforts. Within three years of its creation and confirmation, a district must develop a plan that is approved by the TWDB. It must also create the rules necessary to implement its plan.

State law requires the TCEQ to step in when this responsibility is not fulfilled.

“If a district does not adopt a plan or doesn’t re-adopt its plan at the five-year milestone, or if it adopts a plan the TWDB does not approve, or if the State Auditor’s Office finds the district to be not operational, it becomes part of the TCEQ’s jurisdiction,” Mills says.

In such a case, the agency then conducts an investigation and attempts

to resolve problems with the district. If that is not possible, it may enter into a formal compliance agreement with the district and set a schedule by which it must work toward achieving compliance. If the issue is still not resolved, the TCEQ can pursue formal enforcement proceedings up to and including district dissolution. This final step occurs rarely.

### **Regional Planning Now Required**

Texas has nine major and 21 minor aquifers. In 2005, Texas legislation required districts to work together within their particular GMA to determine the desired future condition of their shared aquifer. These conditions must be adopted no later than Sept. 1, 2010, and must be reviewed every five years.

Through this coordinated effort, the districts will compare notes on their plans and water usage with the

goal of determining how they want the aquifer to look in 50 years. The TWDB will take this information and, through its groundwater availability modeling, determine what the projected groundwater use for each district and each management area should be. This information will help districts understand how they need to regulate the drilling and permitting of water wells.

“Once the desired future condition is adopted and the managed availability is calculated, then the districts will need to amend their water management plans and rules to try to achieve the future conditions,” Mills says.

The information compiled by districts through this coordinated effort will in turn inform regional water planning and be rolled into the state water plan developed by the TWDB. When determining desired future conditions, each district must study

the best way to balance its particular groundwater needs with the need to protect their aquifer.

### **Districts Educate Users, Receive Information, through Alliance**

Greg Ellis, executive director of the Texas Alliance of Groundwater Districts, says public education and outreach by districts to their water users has helped conserve and protect the resource.

“We’ve definitely had an impact on reducing the total amount of water consumed,” Ellis says. “We’re not only using education programs to stretch groundwater supplies so that they last longer, but to ensure that groundwater is not contaminated.”

Education of alliance members is also important. The group works to make certain that districts have current information about issues and activities relevant to groundwater management,



The grotto at Westcave Preserve in the Texas Hill Country is an example of the type of terrain that occurs near karst aquifers, characterized by springs, caves, and sinkholes. According to the U.S. Geological Survey, about 40 percent of the groundwater used in the United States for drinking comes from karst aquifers.

Photo courtesy of Michael A. Murphy/TxDOT

including details about the technical and day-to-day aspects of operating a district. Eighty-two of the state's 96 districts are members.

### Texas Leads in Water Planning

Forty districts were formed during the 45 years following the passage of legislation that enabled the creation of groundwater conservation districts. Then, in 1997, Senate Bill 1—an omnibus water bill—passed, spurring district creation. The law clarifies some district authorities and recognizes districts as the state's preferred method of groundwater management. During the past 12 years, 58 new districts have been created. Many of these are now multi-county districts, illustrating a recent legislative trend to favor regional water planning.

"Overall, I think the planning process is extremely important," Ellis says. "By setting limits on how much we

can pump from each aquifer [through the groundwater management area planning process], we are creating an atmosphere where water planning can be successful."

"Texas is a leader when it comes to water planning," Mills says. "I think

this state is miles ahead of most other states. The changes that the Legislature enacted to require regional water plans and local buy-in to feed the state water plan have been instrumental. It's a really good process and one that I'm proud of for my state." ❖

## Texas Groundwater Protection Committee Celebrates 20 Years

Two decades ago, the Texas Legislature created the Texas Groundwater Protection Committee (TGPC) to improve coordination among the state's multiple water and waste regulatory programs. The TGPC focuses on protecting the quality of the state's groundwater resources.

According to its latest biennial report, *Activities and Recommendations of the TGPC: Report to the 81st Legislature*, the group implements the state's policy of non-degradation of the state's groundwater resources by "identifying opportunities to improve existing groundwater quality programs and promote coordination among agencies."

In addition to its biennial report to the Legislature, the TGPC prepares a number of publications, including the *Texas Groundwater Protection Strategy* and the *Joint Groundwater Monitoring and Contamination Report*.

"Ninety-nine percent of the work is done by subcommittees," says Cary Betz, technical specialist in the TCEQ's Water Supply Division, who represents TCEQ Executive Director Mark Vickery as committee chair. "And these subcommittees draw upon the expertise of ten member organizations to identify needs to be addressed and pinpoint data that should be collected to achieve the committee's mission."

In 2004, for example, the TGPC's Research Subcommittee helped identify and get funding for important research on groundwater contamination. Arsenic was turning up in the groundwater of various areas of the state. The results were surprising. The research found that the chemical element was leaching into groundwater from underground deposits of volcanic ash.

"We will be able to tell water suppliers 'don't drill into this zone, or case off that zone,'" Betz says. Casing off a zone, in this instance, means installing a protective sleeve of pipe (casing) on a particular strata to prevent the arsenic-contaminated water from entering the well bore and commingling with the rest of the water in the well.

The committee's State Management Plan for Prevention of Pesticide Contamination of Groundwater, which addresses potential and actual groundwater contamination from pesticides, is paramount among the TGPC's accomplishments during the last 20 years.

"It was a large effort that spanned about five years, Betz says. "This is the single most important achievement we've made." ❖



# Longtime TCEQ Employee Appointed New Commissioner

*Carlos Rubinstein brings unique insight into agency operations*



**W**hen it was time to appoint a new TCEQ commissioner last summer, Texas Gov. Rick Perry selected the agency's own Deputy Executive Director Carlos Rubinstein.

The Pan American University graduate, who has a degree in biology and chemistry, comes to the post with more than 16 years experience as an employee of the agency and its predecessor the Texas Water Commission. In addition to holding the position of deputy executive director, he has also served as area director for the Border and South Central Texas, as regional director for the Harlingen and Laredo offices, and as the Rio Grande Watermaster.

## **Career-Defining Moment**

As watermaster, Rubinstein was in charge of allocating, monitoring, and

controlling the use of surface water in the Rio Grande basin from Fort Quitman to the mouth of the Rio Grande.

He was also largely responsible for finding a solution to Mexico's water debt to the United States.

Under a treaty signed in 1944, the United States and Mexico share water from the Rio Grande and the Colorado River. Mexico's obligation is to transfer from six Rio Grande tributaries a minimum average of 350,000 acre-feet (af) of water per year.

In 1992, Mexico began falling behind and accumulating a water debt. By 2002, the debt had grown to 1.5 million af. Negotiations to resolve the dispute between the two countries reached the highest governmental levels on both sides of the Rio Grande, including Gov. Rick Perry and then presidents George W. Bush and Vicente Fox.

As the TCEQ's point man on water-debt negotiations, Rubinstein met in Washington, D.C., with the U.S. Department of State, the International Boundary and Water Commission, and the National Security Council. He also conferred with Mexican officials on viable water delivery and debt-repayment plans.

In early 2005, a repayment schedule was agreed upon and Mexico finally began paying down its debt, which was now 12 years old. On Sept. 27, 2005, the last transfer of water owed by Mexico was credited to the United States.

For his work in helping to resolve this long-standing issue, Rubinstein not only received recognition from the TCEQ, but also from the governor and the State Department.

"Being able to work with dedicated public servants from the U.S. and Mexico on the Mexico water debt and to ultimately find resolution was an opportunity I truly treasure," says Rubinstein. "It was very much a career-defining moment."

## **Nickname**

Rubinstein's ability to negotiate was recognized early on.

Jeff Lewellin, who is currently the leader of the TCEQ Emergency Response Strike Team, was a section leader at the Texas Water Commission when Rubinstein was hired as a petroleum storage tank investigator, in 1989.

"Carlos was known as the 'bulldog' in field operations back then," recalls Lewellin. "We gave him that nickname because once he got hold of you, he didn't let loose until he was through. And we said that with the greatest fondness and respect for the excellent level of work he did, as well as the level of detail in his work."

## **Importance of Family**

Born in Mexico City, Rubinstein moved with his family to the Lower Rio Grande Valley when he was ten years old. He

*“Being able to work with dedicated public servants from the U.S. and Mexico on the Mexico water debt and to ultimately find resolution was an opportunity I truly treasure. It was very much a career-defining moment.”*

didn't speak any English until he was ten or eleven. “I spoke Yiddish and Spanish at home in Mexico,” he says. “Yiddish helped me learn English.”

Family is an important part of Rubinstein's life. He met Judy, his wife of 27 years, during their sophomore year in high school.

“Judy will tell you that it took me an entire year to get up enough nerve to ask her to be my girlfriend,” he says. “I asked her to be my girlfriend on May 15 and we were married six years later, to the day, which was also the day before we graduated from college. We renewed our vows 17 years later.”

The couple has three daughters. The oldest, Jacqueline, is a nurse in

Austin; Tiffany is studying to be a pediatrician at Baylor Medical Center in Houston; and Jennifer, the youngest, is finishing her art degree at the University of Nebraska at Lincoln. Jacqueline has two daughters, Sammie and Joslin.

“My grandchildren are my whole life,” says Rubinstein, beaming with pride.

### Early Career

“My first job right out of college was as epidemiologist for the City of Brownsville, where I tracked all the communicable diseases that were reportable,” says Rubinstein.

Within the year, he was promoted to city health director. By 1987, he was given the additional responsibility of



Judy and Carlos Rubinstein with granddaughters Joslin and Sammie.

## In Brief Carlos Rubinstein

### Education

**Texas Southmost College, Brownsville  
Associates of Arts, 1980**

**Pan American University  
(now UT-Pan American), Edinburg  
Bachelor of Science, 1982**

Major: Biology  
Minor: Chemistry

### Career

#### City of Brownsville

Director of Public Health and Emergency  
Medical Service, 1983–1989

#### Texas Water Commission and TNRCC, Weslaco

Waste Program Manager, 1989–1995

#### City of Brownsville

Health and Permitting Director, 1995–1997  
City Manager, 1997–2000

#### TCEQ, Harlingen

Regional Director and Rio Grande  
Watermaster, 2000–2006

#### TCEQ, Austin

Area Director (Border and South Central Texas)  
and Rio Grande Watermaster, 2006–2008  
Deputy Executive Director, 2008

### Memberships

Rubinstein is a member of the Governmental Advisory Committee, which provides advice to the EPA administrator on environmental concerns regarding NAFTA, the North American Agreement on Environmental Cooperation, and the Commission for Environmental Cooperation. He is also a member of the Western States Water Council and the Environmental Council of States. He serves as a Texas representative to the Water Worktable of the Border Governors Conference and as a representative to the Environmental Flows Advisory Group. He is a former member of the Joint Advisory Committee for the improvement of air quality in the Paso del Norte air basin.

being director of EMS. “It really puts things into perspective when you have to save lives,” he says.

Rubinstein served as Brownsville’s city manager from 1997 to 2000. He compares his charge at the TCEQ as deputy executive director with that as city manager, where he learned the importance of balancing the need to continue to provide good service that’s responsive, with the need to grow the tax base and the city’s economy.

“Here we protect the environment commensurate with a sustainable economic development,” he says. “They go hand in hand. They are not competing interests.”

The commissioner speaks with nostalgia about his accomplishments in his hometown.

“When you go back and see things you know you had a role in—such as the expansion of an expressway or the construction of a new international bridge or a new hospital—you know you have made a difference. And if something you worked so hard to build has a plaque with your name on it, you have to be proud of that.”

### **TCEQ Accomplishments**

Rubinstein is also proud of his accomplishments, and those of his colleagues, at the agency.

“I take great pride, as does everyone here, in the successes we have been



Photo by Bob Daemrich

**Governor Perry swears in Carlos Rubinstein, as his wife Judy holds the Bible and the Chumash.**

able to achieve statewide in protecting the environment,” he says, adding that over the last eight years, ozone has been reduced by 22 percent, and NO<sub>x</sub>, a limiting component of ozone production, has been reduced by 35 percent. In addition, water quality protection efforts have been refocused to streamline the process, improve regulatory flexibility, and establish a tailored approach for addressing individual water bodies.

### **The Future**

Having moved up the ranks at the TCEQ gives Rubinstein unique insight into agency operations and firsthand knowledge of many of the issues that affect Texans on a day-to-day basis. And he is

especially looking forward to the opportunities that lie ahead.

“Internally, I want to continue to put emphasis on growing the talents and skill sets of TCEQ employees, facilitating their ability to grow into leadership positions, both as managers and as scientists” says Rubinstein. “That’s very important.”

“Externally, we’ll be going through Sunset Review, and it will give us an opportunity to reflect on what we’ve done for the last 10 years,” he says. “The Legislature gives us guidance and directs funding for the programs we undertake and provides direction on how we should be carrying them out. This will offer additional opportunities.”



*“I take great pride, as does everyone here, in the successes we have been able to achieve statewide in protecting the environment.”*

“I also look forward to hearing from the public, because they tell us what they think we should be doing differently or better,” he adds.

Rubinstein feels deeply honored by the appointment. “It’s also humbling,” he says. “I am very grateful to the governor for having afforded me this opportunity.”

Ask anyone at the TCEQ how they feel about “one of their own” being selected to one of the agency’s three policy-setting positions, and you’ll likely see a smile, followed by the comment, “I think that’s pretty cool.”

That is exactly what happened the day Judy Rubinstein visited the agency to accompany her husband to the swearing-in ceremony. When she gave her name to the security guard, he immediately told her he thought it was “cool” her husband had been selected for the appointment.

She smiled and replied, “So does he.”

“It has been very rewarding to have received so many positive comments from TCEQ employees,” says the commissioner. “This also means that I have a bigger responsibility to those employees. I am one of them and I always will be. I’ll take that on, though. That’s a good thing.”

Appointed to a term that extends through 2015, Rubinstein’s foremost goal, he says, is “a better Texas.” 🌱



Official conference photo

**Commissioner Rubinstein (far left, back row) represented Texas Gov. Rick Perry in Monterrey, Mexico, at the 2009 Border Governors Conference. The group is comprised of 10 governors—four from the United States and six from Mexico.**



Photo by Bob Daemrich

**Commissioner Rubinstein meets with water irrigators in the Rio Grande Valley.**

# COOPERATIVE SOLUTIONS FOR THE ENVIRONMENT

## *The TCEQ and the Natural Resource Trustee Program restore damaged natural resources*

**W**hen oil or hazardous substances are discharged into the environment, fish, wildlife, plants, and other natural resources can be injured. When this happens in

Texas, one program that often steps in to ensure the restoration of lost natural resources is the Natural Resource Trustee Program (NRTP).

In this program, the trustees are designated federal or state natural resource management agencies

authorized by law to seek compensation to the public for the loss of natural resources, says Richard Seiler, who has headed the program at the TCEQ since 1995. In addition to the TCEQ, the other designated agencies that participate as part of the trustee team in Texas are the Texas Parks and Wildlife Department, the Texas General Land Office, the U.S. Department of the Interior, and the National Oceanic and Atmospheric Administration.

### **Working Cooperatively for Success**

“We have perfected the art of working cooperatively with responsible parties to come up with cost-effective restoration projects that compensate for an injury associated with the release of hazardous materials,” says Seiler.

Take what happened at Lavaca Bay, for example.

In 1994, an area along the eastern shore of Lavaca Bay was designated as



Piers were constructed as part of the restoration project at Lavaca Bay, to offset recreational fishing losses.

Photo courtesy of Texas Parks and Wildlife Department

# TIONS MENT

Photo courtesy of Texas Parks and Wildlife Department

Seventy acres of intertidal salt marsh were created in Lavaca Bay to compensate for an injury associated with the release of hazardous materials. As part of the Aransas National Wildlife Refuge, this new marsh adds to the foraging area of endangered whooping cranes.

a Superfund site by the EPA. The site included portions of an industrial facility at Point Comfort, as well as a dredge spoil island and nearby areas of the bay.

Working cooperatively, the Texas N RTP trustees, the EPA, and the responsible party agreed on a variety of restoration projects to compensate for natural resource losses resulting from the site's contamination, as well as for services lost.

Restoration projects included the creation of 70 acres of intertidal salt marsh within the Aransas National Wildlife Refuge and 11 acres of new oyster reef habitat in Lavaca Bay. In addition, 729 acres of land will be preserved by transferring it to the U.S. Fish and Wildlife Service as part of the refuge. To offset recreational fishing losses, new fishing piers at Six Mile Park, Point Comfort Park, and the bay-front peninsula in Port Lavaca were constructed. An existing auxiliary boat ramp was replaced, docks were built,

and an existing jetty was modified to improve access to and enhance recreational fishing opportunities in the bay.

"What we did from a practical standpoint with the Lavaca Bay restoration project is a model for the rest of the nation," says Seiler.

## The Cadillac of Marsh Construction

Innovative ideas are often employed in restoration projects, like the one Seiler calls "the Cadillac of marsh construction," at Swan Lake, near Texas City.

The Swan Lake ecosystem, which is part of the greater Galveston Bay ecosystem, is a major habitat for numerous shellfish species—including the white shrimp, brown shrimp, eastern oyster, and blue crab—that are important to both recreational and commercial fishing. These waters are also critical habitat for various species designated by the state as threatened or endangered, including the white-faced ibis and the reddish egret.

During World War II, Swan Lake was home to the largest tin smelter in the world. The smelter operated under government contract from 1941 until 1956, when operations passed to private control. Using data developed by a remedial study, trustees were able to identify the types of habitats that had the greatest potential to have been injured by historical and ongoing releases of metals from the smelter.

Studies determined that the Galveston Bay ecosystem would benefit from a created marsh. Also critical to this project was the construction of a 5,200-foot rock breakwater to replace the natural breakwater that had subsided and eroded over time. The marsh itself was constructed using clean dredge material moved from a containment area adjacent to the restoration site.

"Scientists determined that the maximum area of productivity for

*continued on page 12*



# NRTP Accomplishments

The Texas Natural Resource Trustee Program has become a national model for its use of cooperative, restoration-based assessments. It uses a “habitat equivalency analysis,” which matches the level of lost natural resource services to the level of services provided by an appropriate habitat-restoration project.

Richard Seiler emphasizes that services provided must be equivalent to services lost.

“They can’t build a prairie for an injury that was in an intertidal wetland,” says Seiler. “There also has to be a general geographic nexus. We try to stay as close to the location of the release as possible.”

Seiler further states that the program is compensatory rather than punitive in nature as might be the case with other

programs. “The Natural Resource Trustee Program was specifically designed to replace natural resources and services as opposed to offsetting a regulatory penalty or fine,” he says.

Since the inception of the program, natural resource restoration projects valued at an estimated \$34.5 million have been implemented across the state on behalf of the public as a result of settlements for the restoration of injured natural resources.

Following are a few of the successful restoration projects in which the TCEQ has been involved:

- **Lavaca Bay, Point Comfort, Calhoun County.** Constructed 11 acres of oyster reefs; constructed three 300-foot lighted piers and two new docks; refurbished three boat ramps; made other

improvements designed to benefit recreational fishing in the bay.

- **Pasadena, Harris County.** Constructed a 35-acre fresh and saltwater marsh along the Houston Ship Channel.
- **Shamrock Island, Corpus Christi Bay, Nueces County.** Acquired and preserved a sensitive 110-acre bird rookery.
- **Baytown Nature Center, Baytown, Harris County.** Constructed a 60-acre nature park with tidal wetlands, fresh and brackish water pools, and forested islands.
- **Lower Neches River Wildlife Management Area, Jefferson County.** Restored subsided wetlands at the Nelda Stark Unit; constructed 85 acres of estuarine marsh and 30 acres of wet prairie at the Old River South Unit.
- **Anahuac National Wildlife Refuge, Chambers County.** Constructed a water-control structure to protect and restore marshes.
- **J.D. Murphree Wildlife Management Area, Jefferson County.** Constructed water-control structures to enhance nearly 1,600 acres of coastal wet prairie.

## Restoration Projects Completed or Planned

Projects	Acres Constructed	Acres Enhanced	Acres Preserved and Protected in Perpetuity
Tidal and Freshwater Wetlands	923	3,670	1,230
Riparian and Bottomland Forests	55	–	1,740
Native Prairie Habitat	415	–	277



Photos courtesy of Texas Parks and Wildlife Department

**Richard Seiler inspects marsh breakwater at the Lavaca Bay restoration project.**

- **San Jacinto Monument State Park, Harris County.** Rebuilt 31 acres of the Santa Ana Bayou marsh complex to bring the habitat back to the way it was at the time of the Battle of San Jacinto, when Texas won its independence from Mexico.
- **Galveston Island State Park, Galveston, Galveston County.** Rebuilt 115 acres of lost estuarine marsh; installed several large breakwaters to protect the greater marsh complex from erosion and further loss; created a suitable environment for the re-establishment of sea grasses at the park.
- **Swan Lake, Galveston Bay, Galveston County.** Restored to its original state 72 acres of intertidal marsh that had been lost to subsidence and erosion.
- **Big Thicket National Preserve, several counties (Jefferson, Hardin, Jasper, and Orange) along the lower Neches River corridor.** Acquired, preserved, and transferred to the National Park Service 645 acres of valuable bottomland hardwood forests.

- **Sheldon Reservoir State Park, Harris County.** Added a 100-acre tract of bottomlands hardwood forest along Carpenter's Bayou to Sheldon Reservoir State Park.
- **Maddin Prairie Preserve, Mitchell County.** Restored 350 acres of native prairie.
- **Clymer Meadows Prairie Preserve, Hunt County.** Restored 15 and preserved 100 acres of imperiled tallgrass prairie; created 11 acres of freshwater wetlands.
- **Colorado City, Mitchell County.** Restored and protected 80 acres of riparian habitats along the Colorado River.
- **Aransas National Wildlife Refuge, Calhoun County.** Constructed 70 acres of intertidal salt marsh within and adjacent to the refuge; 729 acres of wetlands, coastal prairie, and shrub lands will be preserved.
- **Harris County.** Restored scarce freshwater wetlands in urban bayous.
- **TPWD Alazan Bayou Wildlife Management Area, Angelina County.** Added 486 acres of bottomlands hardwood habitat.
- **San Patricio County.** Preserved 360 acres of wetland and riparian habitat adjacent to the Nueces River.

To learn more about the Natural Resource Trustee Program, visit [www.tceq.state.tx.us/goto/nrtp](http://www.tceq.state.tx.us/goto/nrtp).

# Cooperative Solutions for the Environment

*continued from page 9*

shrimp and crabs exists in marsh grass that lies within the first 30 feet from the water,” says Seiler. “We were able to engineer the project to magnify the amount of interface between water and marsh grass. We designed the entire marsh to be as close as possible to within 30 feet from a water source.”

## Partnering for Increased Benefits

The NRTP trustees often partner with non-profit organizations and local government entities to obtain matching or in-kind funding.

The TCEQ initiated a partnership with the U.S. Army Corps of Engineers to secure Water Resources Development Act Section 204 funds for a wetlands restoration project in the Bessie Heights Marsh, located along the lower Neches River between Port Neches and Bridge City. The trustees then worked with the Jefferson County Navigation District to have it serve as the local project sponsor.

“The lower Neches River delta has experienced the most significant, contiguous loss of coastal marsh of any location in Texas,” says Seiler. “We were able to almost quadruple the amount of funds for marsh restoration, which allowed us to construct about 75 acres of intertidal marsh in Bessie Heights.”

The trustees also partner with land trusts to place land into conservation easements.

Using funds received from four different settlements, trustees worked with the National Park Service and the Conservation Fund to acquire and preserve

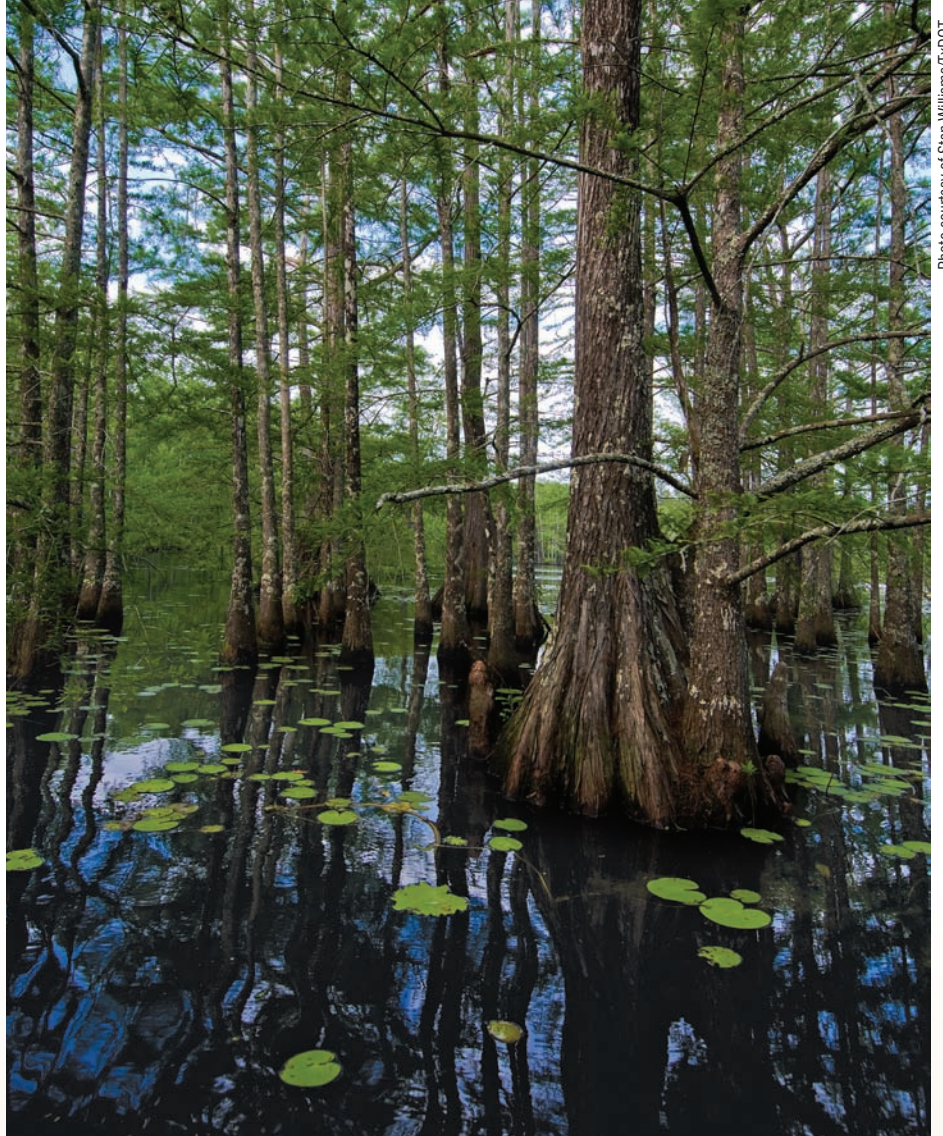


Photo courtesy of Stan Williams/TXDOT

**Cypress-tupelo swamps such as this one have been preserved and transferred to the Big Thicket National Preserve as part of the Natural Resource Trustee Program.**

645 acres of valuable bottomland hardwood forests along the lower Neches River corridor in Jefferson, Hardin, Jasper, and Orange counties. Ownership of the land was then transferred to the National Park Service as part of the Big Thicket National Preserve.

At a former Superfund site adjacent to Clear Creek, the last unchannelized bayou in the Houston area, trustees placed 145 acres of land into preservation in a conservation easement. A borrow pit that had been used to get the clay needed to stabilize the site was reconfigured and turned into a natural wetlands area.

“We basically took a big hole in the ground, cut a channel to the adjacent

creek, reconfigured it, and planted it with a diversity of native vegetation,” Seiler says. “We put up about three or four wooden duck boxes. The ducks moved in almost immediately and successfully nested.”

The trustees have also formed successful project partnerships with the Nature Conservancy, the Texas Land Conservancy, the City of La Marque, the City of Baytown, Scenic Galveston, the Galveston Bay Foundation, and other organizations.

“What we do in Texas is recognized nationally,” says Seiler. “And partnering is one of the most important components of the Natural Resource Trustee Program.” 🌿

# Mapping the Environment

## *Geographic information systems at the TCEQ*

**W**henever a water well is drilled in the state, a detailed report must be completed and the resulting paper files maintained by the TCEQ. The agency currently houses these water-well driller reports dating back to the 1930s—which over the years has added up to around 800,000 records, more or less.

Until recently, if you wanted to review the water-well driller reports, you had to go to the TCEQ and check out the paper files from the central file room. And you had to check the files back in by the end of the day. If you weren't finished reviewing the files, you had to go back another day. This might not have been a problem for someone from Austin, but it sure could be inconvenient for someone from El Paso.

Today, however, scanned copies of all water-well driller reports are available online to anyone with a computer and an Internet connection.

"The most historically sought-after data that we have at the agency is now available online," says Leon Byrd, senior geologist with the Groundwater Planning Assessment Team in the Water Supply Division. "If someone in Spokane, Washington, wants to know what the groundwater situation is like in Dalhart, Texas, they can now access the information at their convenience."

And, thanks to geographic information system technology and the online Water Well Report Viewer, that person in Spokane can click on any location in Texas—or they can type in a Texas address—to pull up reports for nearby wells.

### **Geographic Information Systems**

A geographic information system (GIS) captures, stores, analyzes, and presents data that is linked to a geographic location. This data is stored as a collection of layers that can be linked together by a common locational component such as latitude and longitude, a postal ZIP code, census tract name, or road name. Data about a particular location on the earth's surface can be visualized in ways that reveal relationships, patterns, and trends.

"Think of it as basically maps in computers," says Michael Meed, Ph.D., leader of the Information

Systems Development Team in the Information Resources Division of the TCEQ. "It's a tool for managing, representing, and presenting spatial data, or where things are on the face of, and even beneath the surface of, the earth."

### **GIS at the TCEQ**

"Everything we regulate and monitor at the TCEQ has a spatial component," adds Meed. "Point sources for air and water pollution originate from identifiable locations. And for nonpoint sources, the monitors we use to detect the presence of those contaminants also have a spatial component."

"GIS allows agency staff or the public to see what is going on environmentally or administratively at a particular location on a map," says Joseph Rincon, leader of the team that develops GIS applications at the agency.

For example, one application helps the agency run models to determine a contamination susceptibility rating for public water systems. Another allows the public to see the areas of the state that are subject to regulation by the TCEQ under the Edwards Aquifer Protection Program. An application is currently being developed that will provide air quality monitoring asset information for the entire state.

The public may now locate water and sewer utility service providers in Texas by entering the street address or intersection into the Water Utilities Map Viewer.

Tracy Harbour, who is the manager of the Water Utilities Map Viewer project in the Water Supply Division, says, "the viewer enables a large variety of customers—such as developers, realtors, engineers, lawyers, consultants, potential new home owners, and utility providers—to view and download GIS data and print water and sewer service area maps." 🗺️

### **Links**

**Water Well Report Viewer:** [www.tceq.state.tx.us/goto/findwell](http://www.tceq.state.tx.us/goto/findwell)

**Water Utilities Map Viewer:** [www.tceq.state.tx.us/goto/iwudmaps](http://www.tceq.state.tx.us/goto/iwudmaps)

**Edwards Aquifer Map Viewer:** [www.tceq.state.tx.us/goto/eapp/mapviewer](http://www.tceq.state.tx.us/goto/eapp/mapviewer)

**For more information about GIS:** [www.tceq.state.tx.us/gis](http://www.tceq.state.tx.us/gis)

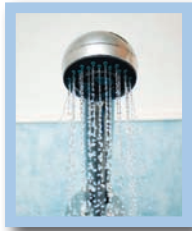
# Resolve to Take Care of Texas

## *Environmentally friendly New Year's resolutions*

**A**s a new year approaches, most people start thinking of ways to improve their lifestyle. This year, why not add a few environmentally friendly practices to the list? Simple changes in daily routines followed throughout the year can make a difference. Here are a few ideas to help everyone start thinking about how to take care of Texas.

### Resolve to Conserve Water

An important way to take care of Texas is by conserving water, and there are many simple measures you can take that will contribute to this goal.



Repair leaky faucets and toilets. A faucet leaking at a rate of one drop per second can waste up to 1,660 gallons of water per year. A leaky toilet can waste about 73,000 gallons of water per year.

Install faucet aerators to cut in half the amount of water used by each faucet, and install water-efficient showerheads to reduce water consumption by 25 to 60 percent.

Water is wasted when it runs unnecessarily, so turn off the tap. In the kitchen, wash produce in a pan or bowl rather than under running water. In the bath, take shorter showers. And, to save up to 4 gallons a minute, turn off the water while brushing your teeth.

### Resolve to Use Less Energy

Texans can choose from many simple steps to conserve energy and reduce electrical consumption.



Use power strips that you can turn off for appliances and electronic devices such as computers, chargers, power adapters, printers, televisions, microwave ovens, and coffee makers. This will eliminate wasteful “standby power,” the electricity consumed by appliances while they are switched off or in a standby mode.

Use compact fluorescent light bulbs. They use 67 percent less energy than incandescent bulbs and can last up to 10 times longer, with an average lifespan of 6,000 hours.

When it is time to replace your appliances and electronics, consider trading up to Energy Star–qualified products that use less energy, save money, and help protect the environment. Visit [www.energystar.gov](http://www.energystar.gov) to learn more about energy-efficient products and practices.

According to the State Energy Conservation Office of Texas, heating and cooling account for 45 percent of a typical household utility bill. Install a programmable thermostat and set it at 78 degrees during the summer months and 68 degrees during the winter.

When used properly, a programmable thermostat with four temperature settings can reduce energy consumption by 10 percent, saving the average household up to \$150 per year.

### Resolve to Use Less Gas

Drive less. Consider organizing or joining a carpool to get to work, or use public transportation. Consolidate errands when possible. Walk or bike more.

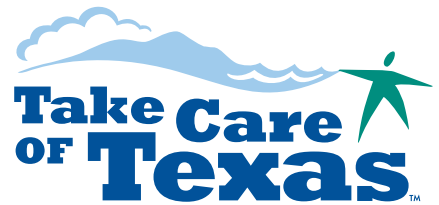


Resolve also to slow down and avoid aggressive driving. This can improve fuel economy by 5 percent in town or up to 33 percent on the highway.

Keep your vehicle in shape. A poorly maintained vehicle can release as much as 10 times the emissions of a well-maintained one. Proper maintenance—such as changing the oil, checking tire pressure, and replacing filters—can reduce a car’s emissions and improve gas mileage by up to 5 percent.

If the new year means a new vehicle, consider the benefits of buying one with a high fuel-economy rating. The TCEQ’s Drive a Clean Machine program offers assistance in 16 participating counties to qualified owners of vehicles that fail the emissions test or that are 10 years old or older. Visit [www.driveacleanmachine.org](http://www.driveacleanmachine.org) to find out more about this program.





## Resolve to Recycle and Compost

Reduce waste, conserve energy, and preserve natural resources by recycling paper, metal, plastic, and other materials. If Texans recycled and composted all their recyclable and compostable materials, almost 90 percent, or over 26 million tons per year, of the municipal solid waste in Texas landfills could be diverted.

Recycle newspapers, food packaging, cardboard boxes, junk mail, and other paper products. Recycling 1 ton of paper is the equivalent of making paper from 17 to 31 trees, and also saves 7,000 gallons of water and 4,000 kilowatts of electricity (enough power for the average home for six months).

Use rechargeable batteries—most can be recharged up to 1,000 times—and then recycle them when they



no longer hold a charge. To find a battery drop-off site near you, visit [www.call2recycle.org](http://www.call2recycle.org).

Donate or recycle electronics instead of discarding them. Recycle used motor oil and other vehicle fluids. Two gallons of recycled motor oil can produce enough energy to power the average Texas home for one day, cook 48 meals in a microwave oven, blow-dry your hair at least 215 times, vacuum a house for 15 months, or run your television for 7½ days straight! Visit [www.cleanup.org](http://www.cleanup.org) to find a recycling center near you.

Compost fruit, vegetable, and yard waste. Compost serves as a great soil conditioner and can reduce the need for water.

## Resolve to Use Less Paper

Use cloth products whenever possible. Switch to reusable



shopping bags. Use dish towels instead of paper towels, cloth napkins instead of paper, and the old-fashioned handkerchief instead of facial tissues.

Junk mail accounts for 4 million tons of solid waste a year. Take your name off marketing mailing lists by calling or e-mailing companies directly or by using a free service such as [www.catalogchoice.org](http://www.catalogchoice.org). Or, for a small fee, you can also register with a comprehensive junk-mail reduction service. Search for “junk mail” online to find some of these services.

## Resolve to Buy Texas

Look for Texas organic fruits and vegetables grown without the use of synthetic pesticides, herbicides, or fertilizers. Most farmer’s markets and pick-your-own farms offer organic products. For locations in Texas, go to the Pick Texas Web site, at [www.picktexas.com](http://www.picktexas.com). Buying food produced in Texas supports the local economy, reduces refrigeration and transportation emissions of long-distance transport, and lessens the need for packing materials.

Visit [www.takecareoftexas.org](http://www.takecareoftexas.org) for more ideas. The Web site also contains an online calculator to help Texans estimate how much water, energy, and money they can save by taking some of the simple steps suggested on the Do Your Part page of the site. ♻️



# The Home Depot and the TCEQ Partner to Take Care of Texas

**T**his year, the Home Depot and the TCEQ partnered to host several events designed to educate consumers on how to take care of Texas.

**At an Earth Day event at 16 Home Depot stores across Texas, more than 40 participants built rain barrels and over 280 participants learned how to save money, water, and energy.**

**At the TCEQ Environmental Trade Fair and Conference in May, a Home Depot representative gave demonstrations on how to build rain barrels. Drawing up to 90 viewers each time, the demonstrations at the Take Care of Texas booth proved to be the highlight of the booth.**

**When not making presentations, the Home Depot representative answered questions about their EcoOptions products. ★**

# Interns Get Real-World Environmental Experience

*Mickey Leland internships bridge academia and the workplace*

By Staci Semrad, contributing writer

Students looking to broaden their understanding of the environment and related issues should look to the *workplace* environment, say alumni of the TCEQ's Mickey Leland Environmental Internship Program.

"It's a lot different from classwork, where you're reading and writing about it. You're actually going out into the field and using that information," says Penny Gibson, a senior studying environmental science at Stephen F. Austin State University, who completed a Mickey Leland internship last summer.

Gibson is among 1,347 students who have completed a Mickey Leland paid summer internship since the program began in 1992, according to Carolyn Mercer of the TCEQ's Human Resources Division, who manages the program. The program enables the interns to work throughout the summer at the TCEQ or with one of various program sponsors, which include both public entities and private corporations.

Though most of the students do their internships at the TCEQ, Gibson did hers at Oncor Electric Delivery in Dallas, one of the TCEQ's corporate partners. She worked in the Environment, Health, Safety, and Training area, where she assisted Oncor supervisors in observing and recording environmental factors related to erosion, wetlands, and endangered species near paths of existing

and proposed power and transmission lines. Oncor employees used the information to determine the environmental impact of clearing trees and other plant life to make way for the lines.

"Few internship programs have operated as long as the Mickey Leland program," Mercer says. It was started by the Texas Water Commission—a predecessor to the TCEQ—in partnership with the Texas Chemical Council and its members.

The program's namesake, the late U.S. Congressman Mickey Leland, was well known for his advocacy for the poor and his work as chairman of the U.S. House of Representatives Select Committee on Hunger. Also an active member of the House Subcommittee on Health and Environment, he made progress in public health, the environment, and issues affecting minorities. He was killed in a plane crash in 1989 while en route to Ethiopia on a humanitarian mission.

The internship program named in Leland's honor was created to provide women, minorities, and the economically disadvantaged with work experience relating to environmental issues. Those groups remain the focus of the program.

Eligible students are those enrolled in environmental or other science-related disciplines at a college or university in the United States.

## Meaningful Work

Sponsors are required to provide interns with a meaningful learning experience. Managers wishing to hire a Mickey Leland intern must include with their application a full job description or list of tasks for the intern.

"Bell Helicopter in Fort Worth has participated in the program almost since its beginning," says Don Legg, Bell Helicopter's director of Environmental and Industrial Safety. Last summer, an intern from Southern Methodist University researched the regulatory requirements for emergency spill response at the company.

Sponsors interview candidates and make their selections based on the candidate's academic achievement, environmental interest, and life and work experiences. Intern wages are paid by the entity that hires the intern.

## Public-Private Partnership

Each summer about 85 interns are awarded an internship. "Of those, about 80 percent are hired by the TCEQ, while the remaining interns are hired by other state agencies and private partners," says Mercer. Among the current private partners are Oncor Electric Delivery, Bell Helicopter, and Pioneer Natural Resources.

Mercer says that increasing private-company participation is one goal of the program.



The program's ten-member advisory board does the majority of the private partner recruiting. Most board members come from entities outside the TCEQ that have business relationships with other companies through which they can find additional partners.

The chair of the advisory board is Deborah Boyle, senior director of Environment, Health, Safety, and Training for Oncor Electric Delivery. Her company has participated in the program every year for the past 15 years.

"I have been so impressed with the quality of students who come through this program," says Boyle. "They have

strong work ethics, they're very bright, they're incredibly motivated, and they want to learn."

### Prepared for the Future

After graduating, former interns typically find professional jobs. Some of them have become environmental consultants, educators, attorneys, and corporate executives.

And some have gone back to work for the entities where they did their internships. L'Oreal Stepney, assistant deputy director for the TCEQ Office of Permitting and Registration, has long supported the internship program.

About five or six Mickey Leland

alumni who did internships with her have found permanent work at the TCEQ after graduating.

After getting her bachelor's degree, Gibson plans to attend graduate school and begin working on her master's in environmental science. When she later seeks employment, she believes her Mickey Leland internship will distinguish her.

"It's better to get some experience," she says, "because those who have that experience are the ones who will get hired."

Additional details about the program can be found at [www.tceq.state.tx.us/goto/intern](http://www.tceq.state.tx.us/goto/intern). 🌱

## Where They Are Now

*Two former Mickey Leland interns share a bit about their professional journeys*



**Name:** Ramiro Garcia

**Employer:** Field Operations Division, TCEQ

**Title:** Area Director for Border and South Central Texas

**Education:** Bachelor of Science in biology, St. Edward's University

**Mickey Leland Internship:** Summer 1993, Petroleum Storage Tank Division of the Texas Water Commission (a predecessor to the TCEQ)

**Biographical Summary:** As an intern at the TWC, Garcia helped lay the foundation for the Leaking Petroleum Storage Tank Corrective Action Specialist Program. This involved working with information on companies interested in becoming registered corrective action specialists.

Shortly after graduating in 1994, he landed a job as an environmental quality specialist at the Texas Natural Resource Conservation Commission (renamed TCEQ in 2002) in the same section in which he had done an internship.

Today, he oversees the TCEQ regions along the Texas-Mexico border and around Austin and San Antonio. He also oversees the Concho, South Texas, and Rio Grande Watermaster programs.

"If it weren't for that internship," he says, "I don't know if I'd be where I am today."



**Name:** Andrew Bluiett

**Employer:** Transmission Services Division, Lower Colorado River Authority

**Title:** Engineer Associate II

**Education:** Bachelor of Science in electrical engineering, Prairie View A&M University

**Mickey Leland Internship:** Summer 1999, Texas Natural Resource Conservation Commission

**Biographical Summary:** As a college student, Bluiett was interested in environmental protection work. When he learned about the Mickey Leland Internship Program, he realized it was an ideal opportunity.

As an intern at the TNRCC, he performed a variety of tasks, including reviewing refinery permit applications to ensure that the applicants had met required benchmarks.

After graduating from college, Bluiett was offered a job at the LCRA.

He urges students interested in the environmental field to get experience, such as with an internship, or by volunteering in the community to support environmental efforts.

"Experience is important, because it's a tough job market out there," he says. "Just getting a degree doesn't make you marketable."



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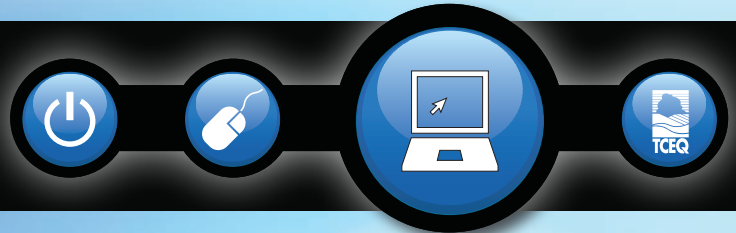


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# Save Time. Go Online.

## Visit the Central Registry Web Query.



**S**ave time and money the next time you need information about TCEQ programs.

Instead of visiting the TCEQ's Central File Room or submitting a Public Information Request, visit the expanded Central Registry Web Query. Commonly requested non-confidential information is now available online from Petroleum Storage Tanks, Industrial and Hazardous Waste, Waste Water, Air Permits, and other agency programs.

Prior to now, only Core Data information was searchable with the Central Registry Web-based application. Now, the tool allows users to drill down through core information to find permit, compliance and enforcement, and other information stored in agency databases.

To search the Central Registry, look for the links in the left navigation bar on the TCEQ home page at [www.tceq.state.tx.us](http://www.tceq.state.tx.us). 